

**ABSTRACT**

An apparatus and method for transmitting and receiving data having a  
5 smallest PAPR in an SLM scheme for PAPR reduction in an OFDM  
communication system using multiple carriers. To transmit the data having the  
smallest PAPR, input symbol sequences are duplicated to a plurality of data  
blocks. Phase-rotated data blocks are generated by multiplying the plurality of  
data blocks by different phase sequences. Side information for identifying the  
10 phase-rotated data blocks is inserted into a predetermined t position of the phase-  
rotated data blocks. IFFT is performed on the data blocks containing the side  
information. The data block having the smallest PAPR is selected among the  
inverse fast Fourier transformed data blocks.